

**【CLAIMS】****【Claim 1】**

A magnesium titanate implant, comprising:

an implant body containing titanium or a titanium alloy; and

5 a magnesium titanate oxide film formed on the surface of the body.

**【Claim 2】**

The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film is prepared in a single or mixed solution containing magnesium by low voltage dielectric breakdown anodic oxidation.

10 **【Claim 3】**

The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film contains 6 to 26% of titanium, 51 to 71% of oxygen and 1.8 to 32% of magnesium, as main ingredients.

**【Claim 4】**

15 The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film has a bilayer structure including an upper porous layer and a lower barrier layer.

**【Claim 5】**

20 The magnesium titanate implant as set forth in claim 1 or 2, wherein the magnesium titanate oxide film has a thickness of 300 nm to 30  $\mu$ m.

**【Claim 6】**

The magnesium titanate implant as set forth in claim 5, wherein the magnesium titanate oxide film has a thickness of 500 nm to 10  $\mu$ m.

**【Claim 7】**

25 A process for preparing a magnesium titanate oxide film implant, comprising:

irradiating UV light on an implant body made of titanium or a titanium alloy in distilled water for more than 2 hours;

dipping the UV light-irradiated implant body in an electrolyte solution containing magnesium; and

30 coating a magnesium titanate oxide film on the dipped implant body by anodic oxidation at a voltage of 60 to 500V.

**【Claim 8】**

The process as set forth in claim 7, wherein the electrolyte solution is a single or mixed solution containing magnesium.

**【Claim 9】**

- 5     The process as set forth in claim 7 or 8, wherein the electrolyte solution has a concentration ranging from 0.01M to 1.0M.

**【Claim 10】**

The process as set forth in claim 7 or 8, wherein the electrolyte solution has a pH of 3.0 to 12.5.

- 10    **【Claim 11】**

The process as set forth in claim 7 or 8, wherein the current density for performing the anodic oxidation is within the range of 30 to 4000 mA/cm<sup>2</sup>.

**AMENDED CLAIMS**

[received by the International Bureau on 30 June 2005 (30.06.2005);  
original claims 1 and 3-5 amended; original claim 2 cancelled;  
remaining claims unchanged (2 pages)]

**【CLAIMS】****【Claim 1】**

A magnesium titanate implant, comprising:

an implant body containing titanium or a titanium alloy; and

- 5                    a magnesium titanate oxide film formed on the surface of the said implant body in a single or mixed solution containing magnesium by low voltage dielectric breakdown anodic oxidation.

**【Claim 3】**

- 10                   The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film contains 6 to 26% of titanium, 51 to 71% of oxygen and 1.8 to 32% of magnesium, as main ingredients.

**【Claim 4】**

- 15                   The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film has a bilayer structure including an upper porous layer and a lower barrier layer.

**【Claim 5】**

The magnesium titanate implant as set forth in claim 1, wherein the magnesium titanate oxide film has a thickness of 300 nm to 30  $\mu$ m.

**【Claim 6】**

- 20                   The magnesium titanate implant as set forth in claim 5, wherein the magnesium titanate oxide film has a thickness of 500 nm to 10  $\mu$ m.

**【Claim 7】**

A process for preparing a magnesium titanate oxide film implant, comprising:

- 25                   irradiating UV light on an implant body made of titanium or a titanium alloy in distilled water for more than 2 hours;

dipping the UV light-irradiated implant body in an electrolyte solution containing magnesium; and

coating a magnesium titanate oxide film on the dipped implant body by anodic oxidation at a voltage of 60 to 500V.

- 30                   **【Claim 8】**

The process as set forth in claim 7, wherein the electrolyte solution is a single or mixed solution containing magnesium.

**【Claim 9】**

5 The process as set forth in claim 7 or 8, wherein the electrolyte solution has a concentration ranging from 0.01M to 1.0M.

**【Claim 10】**

The process as set forth in claim 7 or 8, wherein the electrolyte solution has a pH of 3.0 to 12.5.

**【Claim 11】**

10 The process as set forth in claim 7 or 8, wherein the current density for performing the anodic oxidation is within the range of 30 to 4000 mA/cm<sup>2</sup>.